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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/559,493	12/05/2005	Marco Bosch	12810-00175-US	8701
23416 7590 01/15/2009 CONNOLLY BOVE LODGE & HUTZ, LLP P O BOX 2207 WILMINGTON, DE 19899				
EXAMINER				
KEMMERLE III, RUSSELL J				
ART UNIT		PAPER NUMBER		
1791				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/559,493

**Applicant(s)**

BOSCH ET AL.

**Examiner**

RUSSELL J. KEMMERLE III

**Art Unit**

1791

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6, 8-17, 19, 20 and 22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-17, 19, 20 and 22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

In view of the amendment made to claim 1 the previous rejection under 35 U.S.C. § 112, second paragraph is withdrawn.

### ***Claim Rejections - 35 USC § 103***

Claims 1-6, 8-17, 19, 20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frauenkron (US Patent 6,562,971) in view of Ogawa (US Patent 6,350,874).

Frauenkron discloses a method of forming a body which involves mixing a zeolite powder with silica (which acts as a binder), extruding the mixture, and calcining the formed body at 500°C for 5 hours (Col 14 line 65 – Col 15 line 6). While the example used in that passage is a zeolite powder of silica and titania, Frauenkron also discloses that the powder could be a mixture of silica and alumina (see Claim 1, Col 15 lines 55-56). The shaped body is further treated by exposure to a gas including water vapor at a temperature of 345°C (Col 15 lines 10-22). This process is disclosed as being carried out continuously (Claim 2), which would include for longer than 20, or even 50, hours, and at an absolute pressure of 0.1-10 bar (Claim 14).

Frauekron does not disclose that the aluminosilicate used have an  $\text{SiO}_2/\text{Al}_2\text{O}_3$  molar ratio of 10:1 to 1200:1, but instead discloses a molar ratio of greater than 1400:1 (Col 4 lines 6-9).

Ogawa discloses an aluminosilicate catalyst to be used in forming preparation of triethylenediamine according to a process similar to that of Frauenkron. Ogawa further discloses that the crystalline aluminosilicate have a molar ratio of silica to alumina of at least 12:1, and preferably from 40:1 to 5000:1.

It would have been obvious to one of ordinary skill in the art, at the time of invention by applicant, to have modified the method taught by Frauenkron by using the aluminosilicate catalyst of Ogawa having a molar ratio of greater than 12:1. This would have been obvious because Ogawa discloses that a catalyst with such a molar ratio is economical, has a long life and the yield can be kept high (Col 4 lines 15-18).

Referring to claims 3 and 4, the treatment is carried out at a WHSV of 1 kg/(kg\*h) (1 g/(g\*h)) (Col 15 lines 18-19).

Referring to claim 6, Frauenkron discloses that the during the water vapor treatment the body is arranged in a fixed bed (Col 7 lines 13-14)

Referring to claims 9 and 10, Frauenkron discloses that the zeolite material is preferably of the pentasil type, and preferably at least partially in the  $H^+$  and/or  $NH_4^+$  form (Col 9 Line 66 – Col 10 line 11).

Referring to claims 11 and 13, Frauenkron discloses a method of making triethylenediamine (TEDA) by a reaction involving ethylenediamine (EDA) and piperazine (PIP) in the presence of the aluminosilicate zeolite catalyst discussed above (Claim 1)

Referring to claim 12, Frauenkron discloses that this process is carried out continuously and in the gas phase (Claims 2 and 3)

Referring to claims 14, 15, 16 and 17, these limitations are all disclosed by Frauenkron (Claims 9, 10, 13 and 14, respectively)

Referring to claims 19 and 20, the chemical synthesis process discussed above for making TEDA renders these claims anticipated.

Referring to claim 22, since Frauenkron and Ogawa make obvious the method of claim 1 as discussed above, they would also render obvious the shaped body prepared by that method.

### ***Response to Arguments***

Applicant's arguments filed 03 November 2008 have been fully considered but they are not persuasive.

Applicant's first argue that Frauenkron does not disclose a step involving a treatment with a gas consisting of water vapor at 100-600°C and an absolute pressure of 0.1-10 bar for at least 20 hours after calcining the shaped body.

This is not found to be persuasive because, as discussed above and in the previous Office action, Frauenkron specifically discloses a step where the calcined shaped body is exposed to water vapor continuously at a temperature of 345°C and at an absolute pressure of 0.1-10 bar. There is nothing recited in current claims regarding the water vapor treatment step that is not disclosed by this step of Frauenkron.

Applicants further argue that this step of Frauenkron is of little relevance because Frauenkron give no proof or even a hint that this step will result in an increase in the cutting hardness of the catalyst body. Applicants argue further that the destruction of

the catalyst during the installation of the catalyst into the reactor would irrecoverably have taken place.

This is not found to be persuasive because based on the similarities to the current invention, it is believed that the catalyst body in Frauenkron would undergo an increase in hardness in the water vapor treatment step in the same manner as occurs in the present invention. The fact that Frauenkron does not disclose or recognize this increase is of no relevance to the present inquiry. The mere recognition of latent properties in the prior art does not render nonobvious an otherwise known invention. *In re Wiseman*, 596 F.2d 1019, 201 USPQ 658 (CCPA 1979). The recognition of another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. *Ex parte Obiaya*, 227 USPA 58, 60 (Bd. Pat. App. & Inter. 1985).

Applicant's argument that the catalyst would have been destroyed during installation into the reactor (before the water vapor treatment takes place) is also not found to be persuasive. The fact that Frauenkron discloses that the catalyst is placed into the reactor and continues on to be used including being exposed to a water vapor treatment as discussed above is evidence that the catalyst would not be destroyed during the installation, since if it were destroyed there would be no reason to continue the process. The prior art is assumed to function as described, and in the current case Frauenkron discloses placement of the catalyst where it is subjected to a water vapor treatment, it is therefore believed that this can be done effectively and without destroying the catalyst.

Applicants restate their position that Frauenkron teaches away from the current invention by reciting a minimum  $\text{SiO}_2/\text{Al}_2\text{O}_3$  molar ratio of 1400:1, above the currently claimed molar ratio of 10:1 to 1200:1.

As stated in the previous Office action, this is not found to be persuasive because there is nothing in Frauenkron that criticizes, discredits, or otherwise discourages the use of an aluminosilicate catalyst having a molar ratio of less than 1,400:1. The fact that they used only catalysts having a molar ratio of greater than 1,400:1 is not the same as teaching away from using a catalyst with the claimed molar ratio. Frauenkron specifically states that the *preferred* catalyst has a molar ratio of 1,400-40,000:1. The fact that a certain catalyst is preferred is not the same as saying that all other catalysts would not also be suitable to be used in the disclosure, it simply shows that a certain catalyst was identified by the applicant as having superior properties for some reason. *In re Fulton*, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004).

Applicants finally argue that Ogawa gives no hint to a calcined shaped body having a molar ratio of 10:1 to 1,200:1 being treated with water vapor at 100-600°C.

This is not found to be persuasive because this is not what Ogawa has been relied upon for teaching. Ogawa is cited merely to show that catalyst other than the high molar ratio catalyst of Frauenkron were known, and that such catalysts could be substituted into the process of Frauenkron, which includes a water vapor treatment step.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **RUSSELL J. KEMMERLE III** whose telephone number is (571)272-6509. The examiner can normally be reached on Monday through Thursday, 7:00-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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